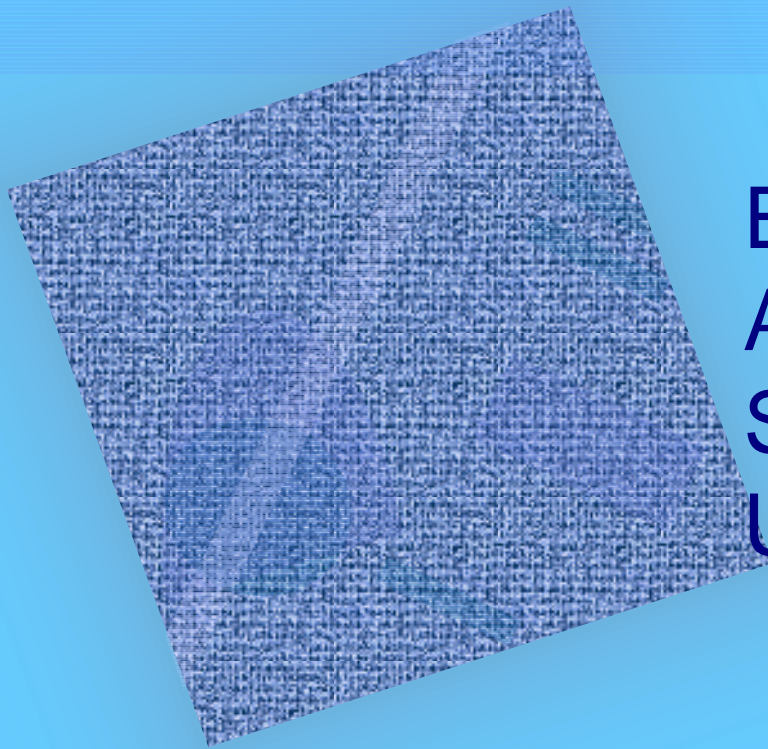


North Central DORA



Electronic Tax
Administration Market
Segment Analysis
Using CHAID

What is CHAID?

- CHAID stands for Chi-squared Automatic Interaction Detector
- Statistical method used to divide a population into segments that differ with respect to selected criteria
- Resulting segments (or groups) do not overlap--they are mutually exclusive and exhaustive

Examples of CHAID Analyses

- Direct marketing--identify households, grouped by demographic characteristics, that are most likely to respond to a marketing promotion
- Identify population segments that are at the greatest risk for heart disease based on a set of risk factors and demographic characteristics
- Identify current and potential market segments for electronic filing of tax returns

Overview of CHAID Analysis for Electronic Filing

- Population of tax returns were grouped into market segments based on filing type by Form
- These categories were:

1040 Paper

1040 Standard ELF

1040 Online

1040A Paper

1040A Standard ELF

1040A Online

1040EZ Paper

1040EZ Standard ELF

1040EZ Online

1040PC Paper

1040PC Online

Telefile

Other

Explanatory Variables Used for Segmentation

- **Preparer Type**
- **Refund/Balance Due Amount**
- **Filing Status**
- **Other Credits**
- **EIC Amount**
- **Return Complexity**
- **Number of Dependents**
- **Taxpayer Age**
- **Taxpayer Adjusted Gross Income**



Overview of CHAID Analysis for Electronic Filing

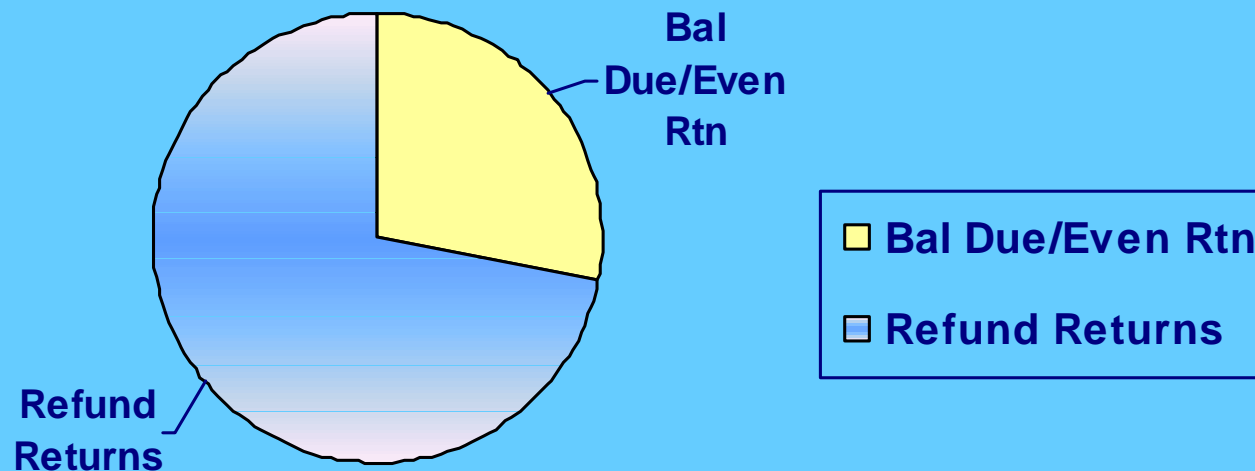
- Segments initially split by preparer type
 - Self Prepared
 - Paid Preparer
 - IRS Assisted
- Refund/Balance Due Amount
 - Refund Return
 - Even/Balance Due Returns

Overview of CHAID Analysis for Electronic Filing

- Market segments then split further based on statistical significance of the other variables
- Separate analyses for Tax Year 1996 and Tax Year 1997
- Market segments were similar for both years

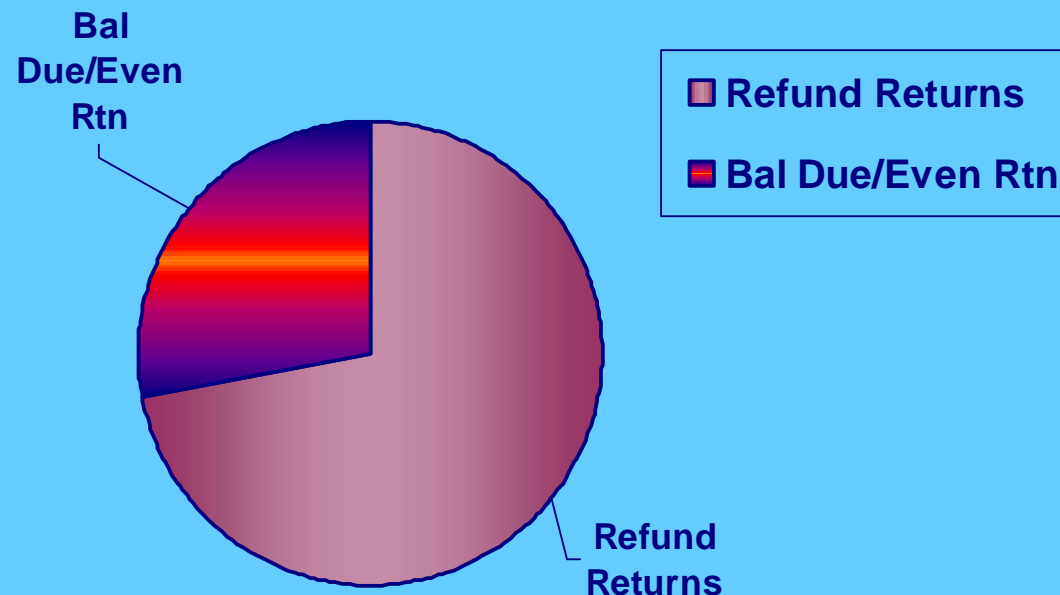
Overview of Results Tax Year 1996

- 84,660,580 refund returns or 71.86%
- 33,159,051 balance due/even returns or 28.14%



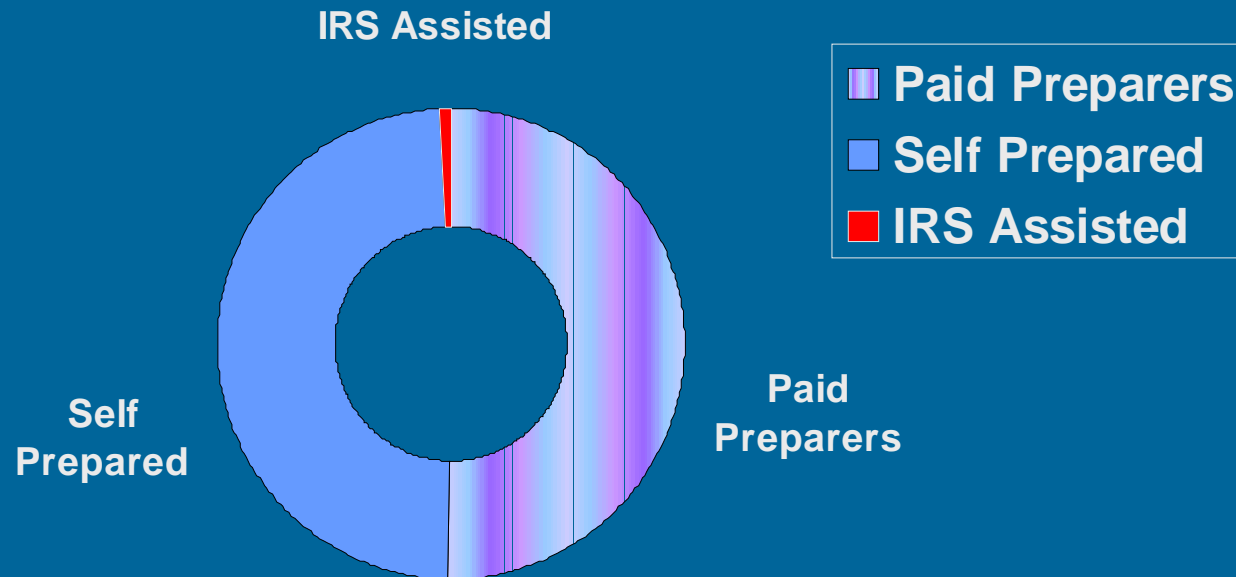
Overview of Results Tax Year 1997

- 86,193,847 refund returns or 72.06%
- 33,411,215 balance due/even returns or 27.94%



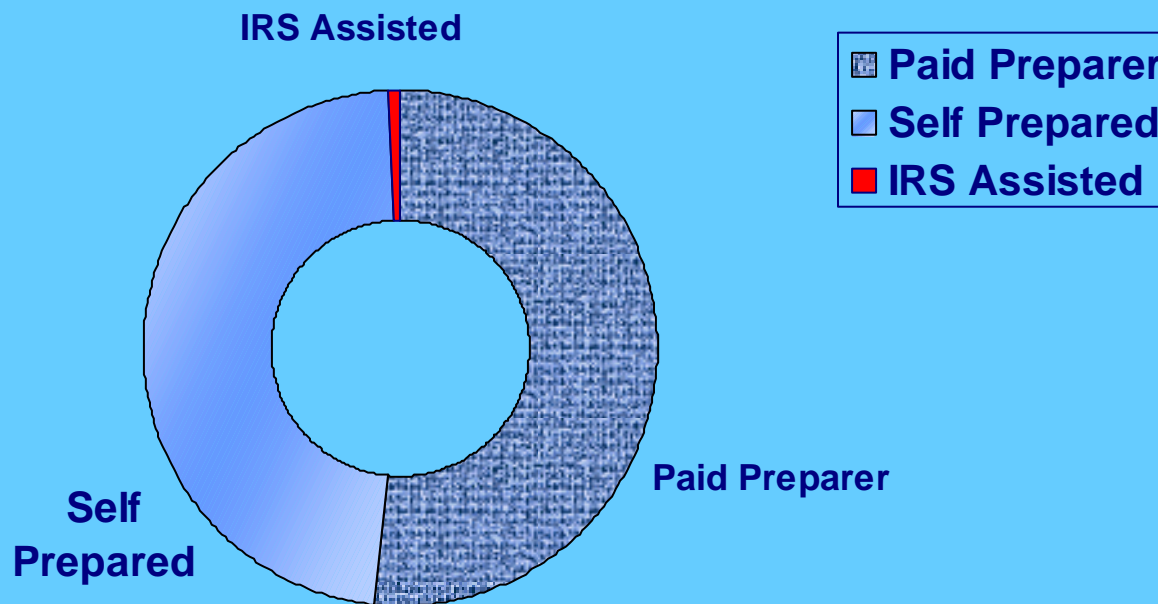
Overview of Results Tax Year 1996

- 59,230,690 Married Filing or 50.27% used paid preparers
- 57,709,841 or 48.98% were self prepared
- 879,100 or 0.75% were IRS assisted



Overview of Results Tax Year 1997

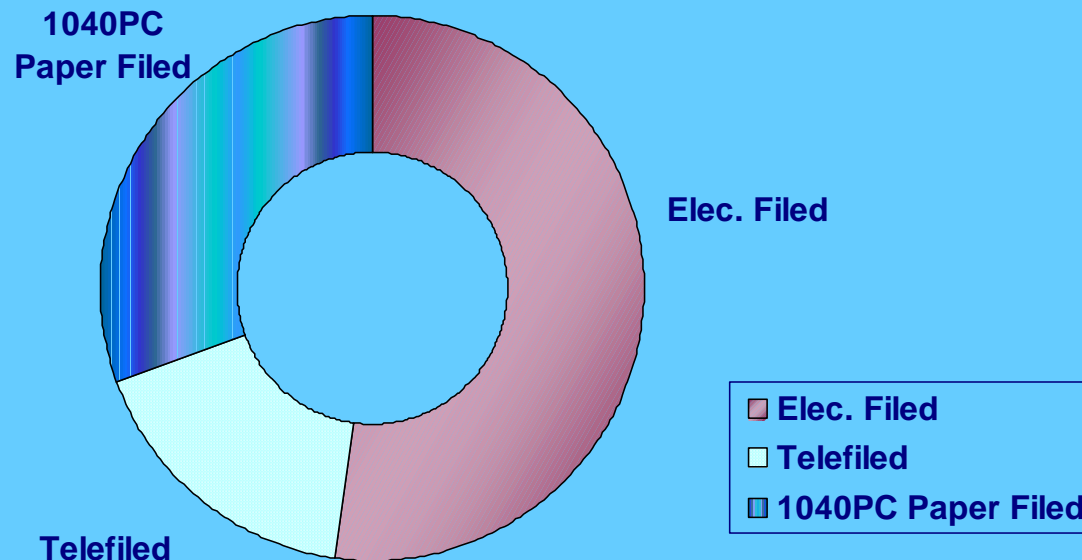
- 61,894,029 or 51.75% were paid preparer
- 56,620,248 or 47.34% were self prepared
- 1,090,785 or 0.91% were IRS assisted



Overview of Results

Tax Year 1996 E-File

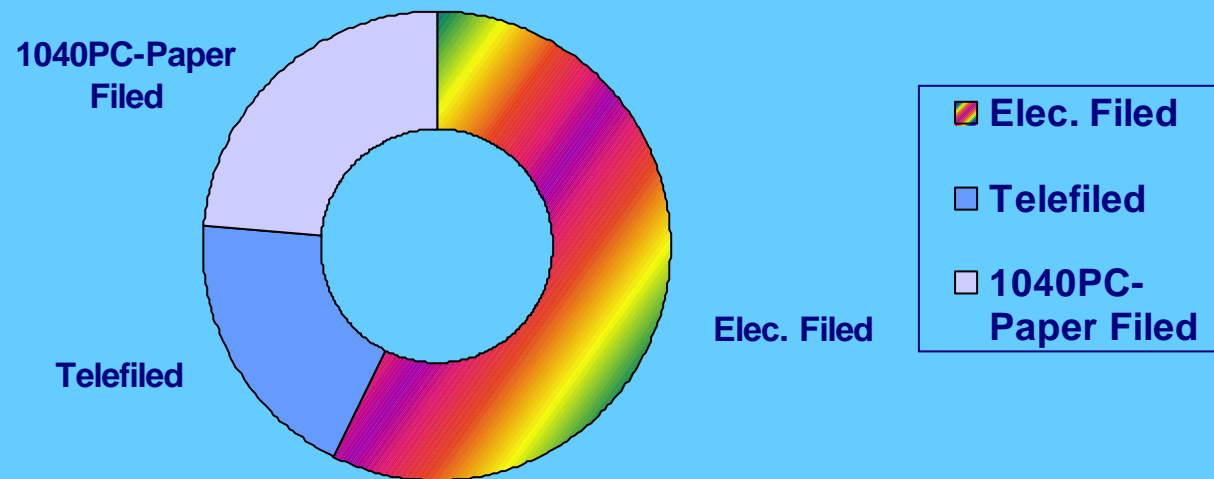
- 14,073,981 or 11.95% returns electronically filed
- 4,606,934 or 3.91% returns telefiled
- 8,266,658 or 7.02 % returns 1040PC (paper)



Overview of Results

Tax Year 1997 E-File

- 17,690,606 or 14.79% returns electronically filed
- 5,953,954 or 4.98% returns telefiled
- 7,299,746 or 6.10% returns 1040PC (paper)



Overview of Results

- Electronic filing increased 2.84% from TY96 to TY97
- Telefiling increased 1.07% from TY96 to TY97
- 1040PC paper filing decreased 0.92% from TY 96 to TY97

Overview of Results

- Lowest percentage of E-file for balance due/
even returns from self preparers.
0.07% ELF in TY96
0.10% ELF in TY97
- No particularly strong segments of E-filers
either year when we look at sub-segments in the
TREE.

Overview of Results

- E-file for balance due/even returns processed by paid preparers
 - 1.89% in TY96
 - 3.77% in TY97
 - No particularly strong segments of ELF filers either year
- In TY96 there were strong market segments of 1040PC paper returns for relatively simple returns
- In TY97 concentrations of 1040PC paper returns in these market segments were lower

Overview of Results

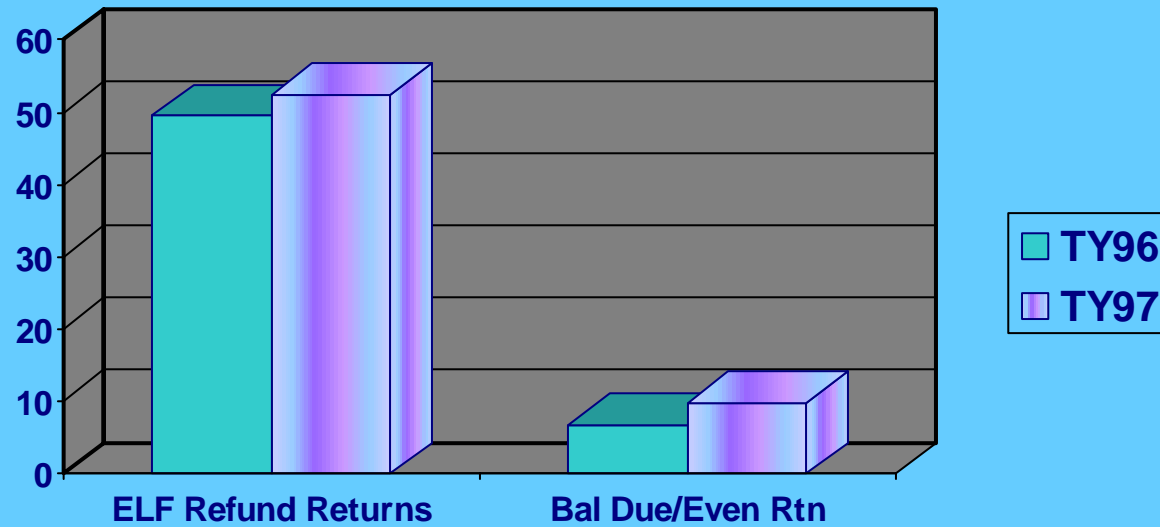
- E-file for refunds processed by paid preparers
 - 33.44% in TY96
 - 39.55% in TY97
 - Market segments with EIC are strong for both years

Overview of Results

- ELF for refunds processed by self preparers
 - 8.58% in TY96
 - 7.59% in TY97 } **Note Decrease**
 - ELF 1040EZ and ELF 1040A decreased 0.68% and 2.1% from TY96 to TY97
 - Telefile increased 7.96% from TY96 to TY97
 - Telefiling may have replaced some ELF filing
 - Market segments with EIC are strong for both years

Overview of Results

- IRS assisted returns
 - ELF refund returns increased from 49.54% in TY96 to 52.41% in TY97
 - ELF balance due/even returns increased from 6.72% in TY96 to 9.78% in TY97



Market Segment Highlights

- Refunds processed by self prepared market segments TY96
 - Strong concentration ELF with large volume--24.53%, ELF with 2,214,723 returns
 - no other credits present, one dependent, EIC in excess of \$1,000
 - Largest concentration ELF 28.73%, ELF with 276,613 returns
 - Other credits present, EIC greater Than \$1,000, Sch A, C and/or F, and/or 1 or 2 other schedules
 - Low concentration ELF with large volume--1.76%, ELF with 26,931,297 returns
 - No other credits present, no dependents, no EIC
 - TY97 market segments are similar

Market Segment Highlights

- Refunds processed by paid preparer TY96
 - Largest concentration ELF--71.06%, ELF with 347,905 returns
 - Other credits present, EIC in excess of \$1,000, Sch A, C and/or F, and/or 1 or 2 other schedules
- Strong concentration ELF with large volume--67.14%, ELF with 5,307,770 returns
 - No other credits present, EIC in excess of \$1,000, Sch A, C and/or F, and/or 1 or 2 other schedules
 - Low concentration ELF with large volume--17.31%, ELF with 18,855,798 returns
 - No other credits, no EIC, no dependents
- TY97 market segments are similar

Market Segment Highlights

- Balance due/even returns processed by paid preparers use of 1040PC-paper returns--TY96
 - Market segments with high volumes
 - No other credits, no dependents, no EIC
12,574,011 returns--12.63% 1040PC-paper, 1.85% ELF
 - No Other credits, one dependent, EIC less than \$1,000,
83,939 returns--14.48% 1040PC-paper, 1.98% ELF
 - Market segments with low volumes, high concentrations of 1040PC-paper
 - Other credits present, one dependent, 1 or 2 other schedules,
117,588 returns--21.69% 1040PC-paper, 3.3% ELF
 - Other credits present, two or more dependents, 1 or 2 other schedules
170,270 returns--18.43% 1040PC-paper, 2.77% ELF

Market Segment Highlights

- Balance due/even returns processed by paid preparers use of 1040PC-paper returns--TY97
 - Market segments with high volumes
 - No other credits, no dependents, no EIC
13,033,641 returns--11.57% 1040PC-paper, 3.99% ELF
 - No other credits, one dependent, EIC less than \$1,000
1,824,568 returns--11.70% 1040PC-paper, 4.04% ELF
 - No other credits, one dependent, EIC less than \$1,000
81,956 returns--12.98% 1040PC-paper, 4.74% ELF

Recommendations

- Target Self preparers--Ct/Rhode Island DORA
 - CD ROM experiment is a good example of a possible marketing approach to this difficult to reach segment
- Further analysis of low concentration ELF segments with large volumes--finer breakdown by demographics would be useful as an input to marketing plans
- Continue analysis for 1998, when available, to assist with marketing strategy and trend analysis

Recommendations

- Continue to market towards converting 1040PC Paper filers to E-file.
Elimination of 1040PC in 2001 provides opportunity if these filers can successfully be converted to E-file.